CLAIMS

1. Non-intrusive method for measuring the loss rates and transfer durations for data in a telecommunication network in packet mode, characterized in that it comprises the following steps:

- the classification of the data packets in a homogenous flow ;
- the calculation of an identification signature for each data packet ;
- the counting of the packets in the flow ;
- the measurement of the unidirectional transfer durations per flow or information flow group, on one hand, and measurement of the loss rate for the packets, on the other hand.

2. Method according to claim 1, characterized in that each packet is subjected to dating in accordance with an absolute time reference gained by observing the probes (2_i) distributed through the network.

3. Method according to claim 2, characterized in that one ticket comprising the packet passage time, the packet signature, and the value of a counter associated with the flow or the flow group is issued.

4. Method according to one of claims 1 to 3, characterized in that it further comprises a filtering step and a semi-static sampling step for classes obtained during the classification step, that sampling consisting in selecting the packets which will cause one ticket to be issued.

5. Method according to one of claims 1, 2 or 3, characterized in that it comprises a dynamic

sampling step with a rate which depends of the congestion conditions in the system.

6. Method according to claim 1, characterized in that each packet is classified according to its recipient characteristics or according to the type of its contents.

7. Method according to one of claims 1 to 4, characterized in that the sampling rate can, either be limited to a maximum value that is defined by an initial configuration, or be modulated by the collecting module (4) or by an external device operating the network (1).

8. Method according to one of claims 1 to 7, characterized in that, for a given flow F, the measurement of the transfer durations is carried out as follows :

$$D_{es}(p) = Hs(p) - He(p)$$

where

$D_{es}(p)$ = Transfer duration from the entry point (e) to the exit point (s) for a packet (p).

$He(p)$ = Time stamping in the ticket associated with the packet (p) by the probe at the entry point.

$Hs(p)$ = Time stamping in the ticket associated with the packet (p) by the probe at the exit point.

9. Method according to claim 8, characterized in that the step for calculating the transfer durations at different sections in the network is carried out by a mapping operation of combinations (class, date, signature) which belong to the same packet that was observed by several probes (2_i).

10. Method according to claim 8, characterized in that, for a given flow F, the number Pes(pq) of packets lost in the network between the passage of the packets p and q is given by the following formulae :

$$Pes(pq) = Ne(pq) - Ns(pq)$$

where

Ne(pq) = Number of packets between the passage of the packets p and q at the exit point.

Ns(pq) = Number of packets between the passage of the packets p and q at the exit point.

11. Method according to claim 5, characterized in that, in the case where the sampling rate is low, time is broken down in slots, starting from the instant when an observed packet caused one last ticket to be issued, the size of the slot can be fixed locally at the probe (2_i) or by the collecting module (4), one counter is associated with each time slot, and for every packet passing by that does not cause one ticket to be issued, the counter associated with the corresponding time slot when the passage occurred is incremented, and for the next packet passing by that causes one ticket to be issued, the list of counters thereby obtained is attached.

12. System with a distributed architecture for implementing the method according to one of claims 1 to 11, said system comprising a plurality of flow observing probes (2_i) arranged in several locations in the network (1), means for compressing measurements carried out by said observing probes (2_i), and means for transmitting these measurements to a module (4) collecting measurements carried out and which is connected to storage means (5) and means (6) for

analyzing said measurements, characterized in that it further comprises means for classifying data packets in a homogenous flow, means for calculating an identification signature for each data packet, means for counting the packets in the flow, and means for measuring, on one hand, the unidirectional transfer durations per flow or information flow group, and, on the other hand, the loss rate for the packets.